



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,034	02/19/2004	Leonard T. Chapman	54767.8065.US00	4269
34055	7590	10/05/2005	EXAMINER QUIETT, CARRAMAH J	
PERKINS COIE LLP POST OFFICE BOX 1208 SEATTLE, WA 98111-1208			ART UNIT 2612	PAPER NUMBER

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,034

Applicant(s)

CHAPMAN, LEONARD T.

Examiner

Carramah J. Quiett

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-15 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 8 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/13/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment(s), filed on 06/13/2005, have been entered and made of record. Claims 1-16 and 18-23 are pending. The Applicant has canceled claim 17 and added claim 23. The newly added claim 23 corresponds to claim 1 and canceled claim 17.

Response to Arguments

2. Applicant's arguments filed 06/13/2005 have been fully considered but they are not persuasive.

The Applicant asserts that the camera crane or crane arm in the Chapman reference, U.S. Patent #6,517,207, is not a camera head. The Examiner respectfully disagrees. Please note that in figs. 1-2 and 8 Chapman '207 illustrates a camera head (42, 44, 60, 68/[fig. 8, 280], 124) mounted on a camera dolly (col. 5, lines 33-63; col. 6, lines 49-55; col. 12, lines 31-44 and 50-52; figs. 1-3A and 8).

Regarding **claim 12**, the Applicant asserts that both the claimed "first frame" and "first arm" is not a boom arm. However, the 06/13/2005 Remarks do not explain why the Applicant disagrees. The Applicant also states that the motor disclosed in Chapman '207 is not "for rotating the first arm relative to the first frame" as claimed and there is no mentioning of any sealing or sealed housing in Chapman '207. The Examiner disagrees. In col. 17, lines 1-10, Chapman '207 states that the drive system, which includes the motor, may be installed at other joints to provide movement. In fig. 4B, ref. 46 is a joint. In col. 7 lines 53-62, Chapman '207 states that the pivots have optional designs and the joint construction in fig. 7 is for all of the joints. In fig. 35, Chapman '207 illustrates the drive system of his invention. Then, in col. 17,

Art Unit: 2612

lines 51-60, Chapman '207 describes the motor drive system as being covered by a cover 870, which is attached (sealed) to the base plate. Lastly, the Applicant asserts that the head frame (second frame) is not attached to the boom arm (first arm). The Examiner respectfully disagrees. As illustrated in fig. 2, Chapman '207 teaches that refs. 42 and 46 attaches the second frame (124) to the first arm (44[80/84/88]). Also, please see fig. 4B and read col. 5, lines 33-53; col. 6, line 56 – col. 7, line 3.

Regarding **claim 1**, the Applicant asserts that neither Chapman nor Lindsay relates to a camera head. The Examiner respectfully disagrees. As stated above, in figs. 1-2 and 8 Chapman '207 illustrates a camera head (42, 44, 60, 68/[fig. 8, 280], 124) mounted on a camera dolly (col. 5, lines 33-63; col. 6, lines 49-55; col. 12, lines 31-44 and 50-52; figs. 1-3A and 8). The Applicant has amended claim 1 to recite, “camera head” instead of “camera support”, so the examiner has revised the rejection to claim 1 to reflect this change.

For **claim 2**, the Applicant asserts that there is no translational or sliding movement possible with joints 210 in Chapman. The Examiner respectfully disagrees. As explained in the Examiner's previous Office Action, the locking element (figs. 4B and 7, refs. 220/222), which is apart of the tilt housing (fig. 4B, ref. 46) [and therefore the tilt frame] is movable into an open position, to allow sliding movement between the pan frame and the tilt frame because arm (42 [120]) the pan frame extends upward to the lateral stubs (50) (col. 6, line 67 – col. 7, line 3). The Applicant also asserts that, “...the pivot joints in Chapman do not relate to being able to secure a frame at multiple positions along an arm, as claimed.” Claim 2 is dependent on claim 1. In claim 1, the addition of the Lindsay reference satisfies the limitation, “...securable at multiple positions...” Please see the rejection for claim 1.

Regarding **claim 5**, the Applicant states that Chapman does not disclose of a sealed bearing as claimed and that Chapman does not address sealing out water, for operation in wet environments, or underwater. The Examiner clearly pointed out a sealed bearing as claimed in claim 5 (fig. 4B, ref. 130; col. 6, line 56 – col. 7, line 3). However, the Applicant did not claim “sealing out water, for operation in wet environments, or underwater” in claim 5. Instead, claim 5 is recited as, “The camera of claim 1 further comprising a sealed bearing in the pan housing, providing a low friction rotation connection between the pan arm and the pan housing.”

Regarding **claim 7**, the Applicant argues that, “Chapman does not suggest any type of sealed structure which could be subject to purging via gas ports. The lightening holes 90 in Chapman are provided to lighten the structure. Since they are permanently open, the structure necessarily cannot be purged via a gas source. Actually, claim 7 is recited as, “The camera support of claim 1 further comprising gas purge ports in the tilt housing.” Claim 7 does not recite anything about a sealed structure, the gas purge ports being permanently open and the structure being purged via a gas source.

Regarding **claim 10**, the Applicant states that Chapman does not suggest any pan shaft sealed against a pan housing and further states that the bolt (fig. 4B, ref. 125) is not a pan shaft. Respectfully, in the previous 03/11/2005 Office Action the Examiner did not state that the pan shaft is the bolt (125). The bolts seals the pan shaft (122) against the pan housing (124/140). Please see fig. 4B.

Regarding **claim 19**, the Applicant states that there is no suggestion in the Lindsay (or in Chapman) whatsoever of a position locking device associated with adjusting the size of the camera head. The Examiner respectfully disagrees. As stated in the Examiner’s previous Office

Art Unit: 2612

Action, "...Lindsay discloses a position locking device moveable from a locked position, wherein the locking device prevents movement between the first arm (35) and the second housing (36), to an unlocked position, wherein the second housing can move relative to the first arm, to adjust the size of the camera head (col. 4, lines 14-28 and 39-59)." Lindsay's camera head (10), which is connected to a camera by refs. 30-32 in fig. 1, is mounted on a mobile platform (fig. 1, refs. 12, 15, 17, 21). Please read col. 3, lines 35-43 and col. 4, lines 1-9.

Regarding **claim 20**, the Applicant states that:

"...Chapman does not disclose first and second motors sealed within housings, or a second frame having an extension section slidable over or into a first arm; or a locking device which cooperates with the extension section, to adjust the size of the camera support. Lindsay also fails to suggest any of these elements. Consequently, claim 20 cannot be obvious over the combination of Chapman and Lindsay. In response to the comments at the top of page 12, while Lindsay discloses camera crane arm counterbalancing techniques, claim 20 is directed to other elements largely unrelated to balancing a crane arm."

The Examiner respectfully disagrees. In col. 17, lines 1-10, Chapman '207 states that the drive system, which includes the motor, may be installed at other joints to provide movement. In fig. 4B, ref. 46 is a joint. In col. 7 lines 53-62, Chapman '207 states that the pivots have optional designs and the joint construction in fig. 7 is for all of the joints. In fig. 35, Chapman '207 illustrates the drive system of his invention. Then, in col. 17, lines 51-60, Chapman '207 describes the motor drive system as being covered by a cover 870, which is attached (sealed) to the base plate. Lindsay is used to teach a camera support (in figs. 1 and 8) having a motor with

Art Unit: 2612

the second frame (36) having an extension section slidable *over* or into the first arm (35) (col. 4, lines 14-28). Lindsay also teaches a locking device associated the extension section and the first arm, with the locking device movable from a locked position, wherein the locking device locks the extension section and the first arm together, to an unlocked position, wherein the extension section first arm can slide *over* or into the first arm, to adjust the size of the camera support (col. 4, lines 39-59). The counterbalancing techniques provide a motivation for combining Lindsay with Chapman.

Regarding **claim 4**, the Applicant asserts that Fantone is entirely unrelated to the field of camera cranes and camera heads. The Chapman reference is used to teach a camera head. In figs. 1-2 and 8 Chapman '207 illustrates a camera head (42, 44, 60, 68/[fig. 8, 280], 124) mounted on a camera dolly (col. 5, lines 33-63; col. 6, lines 49-55; col. 12, lines 31-44 and 50-52; figs. 1-3A and 8). Fantone is used to teach a surveillance video system in fig. 2, with an imager (116) connected to a waterproof cable (12). Please read Fantone, pages 3-4, paragraphs 33-34. Both Chapman and Fantone have housings which capable of vertical and horizontal movements (page 3, paragraph 33).

Regarding claims 11 and 14, the Applicant asserts that combination of Chapman, Lindsay, and Sondergard does not disclose the claimed pan, tilt, and roll housings, or a camera head adapted for use underwater. The Examiner respectfully disagrees. The Chapman reference is used to teach a camera head. In figs. 1-2 and 8 Chapman '207 illustrates a camera head (42, 44, 60, 68/[fig. 8, 280], 124) mounted on a camera dolly (col. 5, lines 33-63; col. 6, lines 49-55; col. 12, lines 31-44 and 50-52; figs. 1-3A and 8). The Lindesay reference is used because claims 4 and 11 are both dependent on claim 1. The Sondergard reference teaches a camera support (in

Art Unit: 2612

fig. 5) further comprising seals in the pan housing and the tilt housing, for sealing water out of each of the housings, to allow for underwater operation of the camera support (col. 2, lines 52-55 and col. 3, lines 29-47). The fact that both Chapman and Sondergard teach sealing the housings (Sondergard, col. 3, lines 29-47; Chapman, col. 7 line 63 – col. 8, line 29); and Chapman's tilt, pan, and roll housings (pivot structures) are similar (Chapman, col. 7 lines 53-62) provide reasons for combining the references used to reject claims 4 and 11. Sealing the housings will help to avoid arduous maintenance (Sondergard, col. 1, lines 10-25). It is well known in the art to use Teflon® materials for protecting/sealing out wetness. Fantone is used for claim 14 to teach a surveillance video system in fig. 2, with an imager (116) connected to a waterproof cable (12). Please read Fantone, pages 3-4, paragraphs 33-34. Both Chapman and Fantone have housings which capable of vertical and horizontal movements (page 3, paragraph 33).

Information Disclosure Statement

3. The information disclosure statement (IDS), filed on 06/13/2005, has been placed in the application file, and the information referred to therein has been considered as to the merits.

Claim Objections

4. **Claims 2-11** are objected to because of the following informalities: The Applicant has amended the preamble of claim 1 to recite "camera head" instead of "camera support".

However, the Applicant did not amend claims 2-11 to reflect the change to claim 1. For claims 2-11, the Applicant should decide whether or not he wants to claim a "camera support" or a "camera head". In the meantime, the Examiner will consider "camera support" to be "camera head". Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claims 12-13 and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by Chapman (U.S. Pat. #6,517,207).

For **claim 12**, Chapman discloses a camera head (figs. 1/8, 42, 44, 60, 68/[fig. 8, 280], 124) comprising:

a first frame (fig. 2, refs. 44[80/84/88], 46, and 60);

a first arm (fig. 2, refs. 44[80/84/88]) rotatably attached to the first frame (figs. 4B/7; col. 7, lines 53-62 and col. 8, lines 6-10);

a first motor (figs. 22-24, 804) for rotating the first arm relative to the first frame (col. 17, lines 1-10), with the first motor enclosed within a sealed first housing (fig. 4B, 46). The first housing includes a cap plate and an axle that is irrotatably secured by a key (col. 6, line 63 – col. 7, line 3). Then in col. 7 lines 53-62, Chapman states that the housings (the pivots) have optional designs and the joint construction in fig. 7 is for all of the joints. Therefore, it is inherent for the seals/fasteners for securing the components of the first housing to be similar to that of the second housing. In col. 17, lines 1-10, Chapman states that the drive system, which includes a motor, can be placed on the other housings (joints) of the camera head to provide tilting movement. Therefore, it is inherent for the first motor to be enclosed within the sealed first housing of Chapman.

Chapman also discloses a second frame (fig. 4B, refs. 42/124/140) attached (col. 7, lines 2-3) to the first arm (fig. 2, refs. 44[80/84/88]);

a second arm (fig. 4B, 42) rotatably attached (col. 6, lines 56-65) to the second frame;
and

a second motor (figs. 22-24, 804) for rotating the second arm relative to the second frame, with a second motor (inherently) enclosed within a sealed second housing (fig. 4B, 124/140). Additionally, in col. 12, lines 18-30, Chapman teaches that the second housing includes 360 degree panning movements, which inherently means that the panning operation rotates. In col. 17, lines 1-10, it states that the drive system, which includes a motor, can be placed on the other housings (joints) of the camera head to provide panning movement.

Therefore, it is inherent for the second motor to be enclosed within the sealed second housing of Chapman. The second housing, which is the pan pivot joint of Chapman, includes a cap plate (also the second frame) and an axle that is irrotatably secured by a key (col. 6, line 63 – col. 7, line 3).

For **claim 13**, Chapman discloses a camera head (in fig. 8) further comprising a third frame (284/294), a third arm (272) rotatably attached (276/278) to the third frame, and a third motor (figs. 22-24, 804) for rotating the third arm relative to the thirist frame (col. 17, lines 1-10), with the third motor enclosed within a sealed third housing (figs. 3B and 8, refs. 160/198/202/220). Also please read col. 12, lines 31-44 and 50-63. In col. 17, lines 1-10, it states that the drive system, which includes a motor, can be placed on the other housings (joints) of the camera head to provide panning movement. Therefore, it is inherent for the first motor to be enclosed within the sealed third housing of Chapman.

For **claim 15**, Chapman discloses the camera head further comprising a first shaft (fig. 4B, ref. 240/236; fig. 22, ref. 810) rotatably supported within the first housing (col. 8, lines 6-17; col. 2, lines 31-36), with the second frame (which includes the second arm [ref. 42]) attached (col. 5, lines 39-40/49-50; col. 17, lines 1-13) to the first shaft, and the first shaft sealed against the first housing (col. 8, lines 6-24 and 30-45; col. 17, lines 11-41), a first gear (ref. 806) linked (col. 17, lines 13-16) to the first shaft through a first clutch (ref. 830), and with the first gear linked to the first motor (col. 17, lines 13-16), and at least one clutch operation lever (ref. 832, col. 18, lines 47-48) on the housing moveable from a first position, wherein the lever engages the first clutch to allow the first motor to drive the first shaft (col. 18, lines 13-44), to a second position, wherein the lever disengages the first clutch, allowing the first shaft to rotate free of the motor (col. 18, lines 45-67).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. **Claims 1-3, 5, 7, 9-10, and 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (U.S. Pat. #6,517,207) in view of Lindsay (U.S. Pat. #5,697,757).

For **claim 1**, Chapman discloses a camera head (figs. 1/8, 42, 44, 60, 68/[fig. 8, 280], 124) comprising:

a pan frame (fig. 4B, refs. 42, 124/140 and figs. 22-24, ref. 804), including a pan housing (fig. 4, ref. 124/140), a pan arm (fig. 4B, ref. 42), rotatably attached to the pan housing (col. 6,

Art Unit: 2612

lines 56-65) and a pan motor (figs. 22-24, ref. 804) for moving the pan arm relative to the pan housing (col. 17, lines 1-10);

a tilt frame (fig. 2, refs. 44[80/84/88], 46, and 60) including tilt housing (fig. 4B, ref. 46), a tilt arm (fig. 2, refs. 44[80/84/88]) rotatably attached to the tilt housing (figs. 4B/7; col. 7, lines 53-62 and col. 8, lines 6-24) and a tilt motor (figs. 22-24, ref. 804) for moving the tilt arm relative to the tilt housing (col. 17, lines 1-10), and with the tilt frame securable (figs. 4B and 7, refs. 220/222) onto the pan arm at multiple positions (col. 5, lines 49-54; col. 12, lines 18-30); and

a roll frame (fig. 8, ref. 286) having a roll housing (fig. 8, 284/294) and a camera platform (fig. 8, ref. 272) rotatably attached (fig. 8, ref. 276/278) to the roll housing (col. 12, lines 31-44 and 50-63), and a roll motor (figs. 22-24, ref. 804) for moving the camera platform relative to the roll housing (col. 17, lines 1-10), and with the roll frame securable (figs. 3B and 8, refs. 160/198/202/220) to the tilt arm at multiple positions along the tilt arm (col. 12, lines 31-44 and 50-63).

Chapman does not disclose the tilt frame securable onto the pan arm at multiple positions along the pan arm. In the same field of endeavor, Lindsay discloses the tilt frame (36) securable (37) onto the pan arm (35) at multiple positions along the pan arm (col. 4, lines 14-28). Both Chapman and Lindsay have components on the tilt arm for stabilizing or balancing the camera support (Chapman, col. 5, lines 55-57) (Lindsay, col. 4, lines 14-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's tilt frame securable onto the pan arm at multiple positions along the pan arm. This

Art Unit: 2612

gives the tilt frame manufacturer an alternative for counterbalancing the arm (Lindsay, col. 4, lines 29-38).

For **claim 2**, Chapman, as modified by Lindsay, further discloses a camera head with the tilt frame (fig. 2, refs. 44[80/84/88], 46, and 60) slidably (in a pivotal direction – fig. 4B, ref. 46) attached (figs. 4B and 7, refs. 220/222) to the pan frame (fig. 4, refs. 42/124/140). Chapman also discloses a camera head including a locking element (figs. 4B and 7, refs. 220/222) movable into an open position**, to allow sliding movement between the pan frame and the tilt frame**, for adjusting the relative position of the tilt frame to the pan frame**, and with the locking element also moveable into a locked position (col. 7, line 53 – col. 8, line 5), to lock the tilt frame into a fixed position on the pan frame (col. 7, line 53 – col. 8, line 5). Also see figs. 1, 2, 4B, and 7; and read col. 12, lines 18-30.

****Note:** The locking element (figs. 4B and 7, refs. 220/222), which is apart of the tilt housing (fig. 4B, ref. 46) [and therefore the tilt frame] is movable into an open position, to allow sliding movement between the pan frame and the tilt frame because arm (42 [120]) the pan frame extends upward to the lateral stubs (50) (col. 6, line 67 – col. 7, line 3). Then, in col. 7 line 53 – col. 8 line 5, Chapman explains how the locking element is tightened. Therefore, it is inherent for the locking element movable to be into an open position (or loosened) because the locking element is used for the operation of the panning and/or tilting in a sliding pivotal direction (col. 7 line 53 – col. 8 line 5). The locking element adjusts the relative position of the tilt frame to the pan frame because the pan frame, which includes the pan arm (42 [120]), is connected to the tilt frame, which includes the tilt housing (46).

For **claim 3**, Chapman, as modified by Lindsay, discloses a camera head further comprising (in figs. 22-24) a worm gear (ref. 810) on the pan motor (ref. 804) meshing with a drive gear (ref. 806) [col. 17, lines 13-16] linked to the pan (ref. 278) through a clutch (ref. 830). Please note that when the worm gear is sandwiched between the components of the clutch assembly (col. 17, lines 31-40), the drive gear is linked to the pan through the clutch (see fig. 22, refs. 830). Additionally, the motor can be applied to panning as well as tilting (col. 17, lines 1-10). Therefore, it is inherent for the shaft (278) illustrated in figs. 22-24 to be replaced by a panning shaft (fig. 4B, ref. 122). Please read col. 17, lines 1-50.

For **claim 5**, Chapman, as modified by Lindsay, discloses a camera support further comprising (fig. 4B) a sealed bearing (ref. 130) in the pan housing (ref. 140), providing a low friction (drag or braking force) rotation connection between the pan arm (ref. 42) and the pan housing (col. 6, line 56 – col. 7, line 3).

For **claim 7**, Chapman, as modified by Lindsay, discloses a camera head further comprising gas purge ports in the tilt housing. In col. 6, lines 23-39, he teaches that lightening holes (fig. 3A, 90) assist in the reduction of heaviness in areas of the boom arm.

For **claim 9**, Chapman, as modified by Lindsay, discloses a camera head further comprising (in fig. 7) an adjustable pan brake (refs. 220/222) to set pan axis braking force (col. 7, line 53 – col. 8, line 5).

For **claim 10**, Chapman, as modified by Lindsay, discloses a camera head further comprising a pan shaft (fig. 4B, ref. 122) in the pan housing, with the pan motor (figs. 22-24, ref. 804) connecting to the pan shaft via gearing (figs. 22-24, ref. 806), pan shaft sealed (fig. 4B, ref. 125) against the pan housing and rotatable within the pan housing (col. 6, lines 56-59) when

Art Unit: 2612

driven by the pan motor. The motor can be applied to panning as well as tilting (col. 17, lines 1-10). Therefore, it is inherent for the shaft (278) illustrated in figs. 22-24 to be replaced by a panning shaft (fig. 4B, ref. 122). Please read col. 17, lines 1-50.

For **claim 19**, Chapman does not disclose a position locking device moveable from a locked position, wherein the locking device prevents movement between the first arm and the second housing, to an unlocked position, wherein the second housing can move relative to the first arm, to adjust the size of the camera head. Instead, Chapman teaches that a locking device (figs. 4B and 7, refs. 220/222) is movable from a locked position to an unlocked position. In col. 7 line 53 – col. 8 line 5, Chapman explains how the locking element is tightened. Therefore, the locking element movable to be into an open position (or loosened) because the locking element is used for the operation of the panning and/or tilting in a sliding pivotal direction (col. 7 line 53 – col. 8 line 5).

In the same field of endeavor, Lindsay discloses a position locking device moveable from a locked position, wherein the locking device prevents movement between the first arm (35) and the second housing (36), to an unlocked position, wherein the second housing can move relative to the first arm, to adjust the size of the camera head (col. 4, lines 14-28 and 39-59). Both Chapman and Lindsay have components on the tilt arm for stabilizing or balancing the camera support (Chapman, col. 5, lines 55-57) (Lindsay, col. 4, lines 14-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera head with a position locking device moveable from a locked position, wherein the locking device prevents movement between the first arm and the second housing, to an unlocked position, wherein the second housing can move relative to the first arm, to adjust the

Art Unit: 2612

size of the camera head. This gives a camera head manufacturer an alternative for counterbalancing the arm of the camera support (Lindsay, col. 4, lines 29-38), and the camera head operator would be able to lock the arm in a fixed position of adjustment if required (Lindsay, col. 4, lines 39-41).

For **claim 20**, Chapman discloses a camera support (in fig. 4B) comprising:

- a first frame (fig. 4B, refs. 42, 124/140) including a first housing (124/140);

- a first shaft (122) rotatably supported within the first housing (col. 6, lines 56-59), and sealed against the first housing (col. 6, lines 56-59);

- a first arm (42) attached to the first shaft (col. 6, lines 56-58);

- a first motor (figs. 22-24, ref. 804) sealed within the first housing, for rotating the first shaft, to rotate the first arm relative to the first housing. In col. 17, lines 1-10, Chapman states that the drive system, which includes a motor, can be placed on the other housings (joints) of the camera head to provide panning movement. Therefore, it is inherent for the first motor to be sealed within the first housing of Chapman.

- a second frame (fig. 2, refs. 44[80/84/88], 46, and 60) including a second housing (fig. 4B, ref. 46);

- a second shaft (fig. 4B, ref. 236/240) rotatably supported within the second housing, and sealed against the second housing (col. 8, lines 6-11);

- a second arm (fig. 2, refs. 44[80/84/88]) attached to the second shaft (col. 8, lines 18-24);

- a second motor (figs. 22-24, ref. 804) sealed within the second housing, for rotating the second shaft, to rotate the second arm relative to the second housing. In col. 17, lines 1-10, Chapman states that the drive system, which includes a motor, can be placed on the other

Art Unit: 2612

housings (joints) of the camera head to provide panning movement. Therefore, it is inherent for the camera support of Chapman to have the second motor to be sealed within the second housing for rotating the second shaft, to rotate the second arm relative to the second housing. Chapman also discloses a locking device (figs. 4B and 7, refs. 220/222) movable from a locked position to an unlocked position. In col. 7 line 53 – col. 8 line 5, Chapman explains how the locking element is tightened. Therefore, the locking element movable to be into an open position (or loosened) because the locking element is used for the operation of the panning and/or tilting in a sliding pivotal direction (col. 7 line 53 – col. 8 line 5).

However, Chapman does not disclose a camera support having a second motor with the second frame having an extension section slidable *over* or into* the first arm. He also does not disclose a locking device associated the extension section and the first arm, with the locking device movable from a locked position, wherein the locking device locks the extension section and the first arm together, to an unlocked position, wherein the extension section first arm can slide *over* or into the first arm, to adjust the size of the camera support. In the same field of endeavor, Lindsay discloses a camera support (in figs. 1 and 8) having a motor with the second frame (36) having an extension section slidable *over* or into* the first arm (35) (col. 4, lines 14-28). Lindsay also discloses a locking device associated the extension section and the first arm, with the locking device movable from a locked position, wherein the locking device locks the extension section and the first arm together, to an unlocked position, wherein the extension section first arm can slide *over* or into the first arm, to adjust the size of the camera support (col. 4, lines 39-59). Both Chapman and Lindsay have components on the tilt arm for stabilizing or balancing the camera support (Chapman, col. 5, lines 55-57) (Lindsay, col. 4, lines 14-38). It

Art Unit: 2612

would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera support having a second motor with the second frame having an extension section slidable *over* or into the first arm. This gives a camera support manufacturer an alternative for counterbalancing the arm of the camera support (Lindsay, col. 4, lines 29-38).

Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's a camera support with a locking device associated the extension section and the first arm, with the locking device movable from a locked position, wherein the locking device locks the extension section and the first arm together, to an unlocked position, wherein the extension section first arm can slide *over* or into the first arm, to adjust the size of the camera support. By doing so, the camera support operator would be able to lock the arm in a fixed position of adjustment if required (Lindsay, col. 4, lines 39-41).

***Note:** The U.S. Patent and Trademark Office considers Applicant's "or" language to be anticipated by any reference containing one of the subsequent corresponding elements.

For **claim 21**, Chapman, as modified by Lindsay, discloses a camera support (in fig. 8) further comprising a third frame (286) have a third housing (284/294) and a camera platform (272) rotatably attached (276/278) to the third housing (col. 12, lines 31-44 and 50-63), and a third motor (figs. 22-24, ref. 804) for moving the camera platform relative to the third housing (col. 17, lines 1-10), and with the roll frame securable (figs. 3B and 8, refs. 160/198/202/220) to the second arm at multiple positions along the second arm (col. 12, lines 31-44 and 50-63).

For **claim 22**, Chapman, as modified by Lindsay, discloses a camera support wherein the locking device (figs. 4B and 7, refs. 220/222) comprises a cam lever (col. 7 line 53 – col. 8 line 5). Please also read col. 16, lines 41-67.

9. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (U.S. Pat. #6,517,207) in view of Lindsay (U.S. Pat. #5,697,757) as applied to claim 1 above, and further in view of Fantone et al. (U.S. Pat. Pub. #2001/0048468).

For **claim 4**, Chapman further discloses a slip ring (fig. 7, ref. 234) assembly in each of the pan, tilt, and roll housings (col. 7, lines 53-62 and col. 8, lines 6-17), and cable segments apparently around the pivot points (col. 11, lines 38-44). However, he does not disclose water proof cable segments extending between the slip ring assemblies. In a similar field of endeavor, Fantone teaches a surveillance video system in fig. 2, with an imager (116) connected to a waterproof cable (12). Please read pages 3-4, paragraphs 33-34. Both Chapman and Fantone have housings which capable of vertical and horizontal movements (page 3, paragraph 33). In light of the teaching in Fantone, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera support with water proof cable segments extending between the slip ring assemblies in order to detect underwater creatures such as fish (Fantone, page 1, paragraphs 5-6).

10. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (U.S. Pat. #6,517,207) in view of Lindsay (U.S. Pat. #5,697,757) as applied to claim 1 above, and further in view of Kahn (U.S. Pat. #5,463,432).

For **claim 6**, Chapman, as modified by Lindsay, does not specifically disclose a camera support further comprising a first pair of waterproof connectors between the pan housing and the tilt housing, a second pair of waterproof connectors between the tilt housing and the roll housing,

Art Unit: 2612

and a third pair of waterproof connectors on the camera platform. However, Chapman illustrates connectors between the pan housing and the tilt housing in fig. 4B, connectors between the tilt housing and the roll housing in fig. 8 and connectors on the camera platform (fig. 8). Then in col. 7 lines 53-62, Chapman states that the pivot joints, which aid in panning, tilting, and rolling between each corresponding housing, each have similar structures. Although Chapman does not specifically teach waterproof connectors between housing, he does teach that a pair of Teflon rings is located within the pivot structures (col. 8, lines 6-17).

In the same field of endeavor, Kahn teaches discloses a camera support (in fig. 2) further comprising a first pair of waterproof connectors between the pan housing and the tilt housing (col. 3, line 58 – col. 4, line 16). Examiner takes Official Notice in that it would have been obvious to have a camera support further comprising a second pair of waterproof connectors between the tilt housing and the roll housing, and a third pair of waterproof connectors on the camera platform because both Chapman and Kahn teach connectors with bearings and ring sealants (Kahn, col. 3, line 58 – col. 4, line 16; Chapman, col. 7 line 63 – col. 8, line 29); and Chapman's tilt, pan, and roll housings (pivot structures) are similar (Chapman, col. 7 lines 53-62). In light of the teaching of Kahn, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera support with a first pair of waterproof connectors between the pan housing and the tilt housing, a second pair of waterproof connectors between the tilt housing and the roll housing, and a third pair of waterproof connectors on the camera platform in order to avoid slippage, reduce friction, and prevent contamination between the housings (Kahn, col. 3 lines 65-66; Chapman, col. 7 line 63 – col. 8, line 29).

11. **Claims 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (U.S. Pat. #6,517,207) in view of Lindsay (U.S. Pat. #5,697,757) as applied to claim 1 above, and further in view of Sondergard (U.S. Pat. #5,316,412).

For **claim 11**, Chapman does not specifically disclose a camera support further comprising seals in the pan housing, the tilt housing and the roll housing, for sealing water out of each of the housings, to allow for underwater operation of the camera support. However, Chapman illustrates connectors between the pan housing and the tilt housing in fig. 4B, connectors between the tilt housing and the roll housing in fig. 8 and connectors on the camera platform (fig. 8). Then in col. 7 lines 53-62, Chapman states that the pivot joints, which aid in panning, tilting, and rolling between each corresponding housing, each have similar structures. Although Chapman does not specifically teach waterproof connectors between housing, he does teach that a pair of Teflon rings (fig. 7, ref. 234) is located within the pivot structures (col. 8, lines 6-17).

In a similar field of endeavor, Sondergard teaches a camera support (in fig. 5) further comprising seals in the pan housing and the tilt housing, for sealing water out of each of the housings, to allow for underwater operation of the camera support (col. 2, lines 52-55 and col. 3, lines 29-47). Examiner takes Official Notice in that it would have been obvious to have a camera support further comprising seals in the roll housing, for sealing water out of each of the housings, to allow for underwater operation of the camera support. Both Chapman and Sondergard teach sealing the housings (Sondergard, col. 3, lines 29-47; Chapman, col. 7 line 63 – col. 8, line 29); and Chapman's tilt, pan, and roll housings (pivot structures) are similar

Art Unit: 2612

(Chapman, col. 7 lines 53-62). In light of the teaching of Sondergard, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera support with seals in the pan housing, the tilt housing and the roll housing, for sealing water out of each of the housings in order to avoid arduous maintenance (Sondergard, col. 1, lines 10-25) and to allow for underwater operation of the camera support in order to avoid slippage, reduce friction, and prevent contamination between the housings.

12. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (U.S. Pat. #6,517,207) in view of Fantone et al. (U.S. Pat. Pub. #2001/0048468).

For **claim 14**, Chapman does not further disclose a camera support wherein the first and second sealed housings are waterproof, to allow for under-water operation of the camera head. Instead, Chapman discloses Chapman further discloses a slip ring (fig. 7, ref. 234) assembly in each of the pan, tilt, and roll housings (col. 7, lines 53-62 and col. 8, lines 6-17), and cable segments apparently around the pivot points (col. 11, lines 38-44). Examiner takes Official Notice that it is well known in the art to utilize Teflon rings for sealing water out of housings, which apparently would allow for underwater operation of the camera support. In a similar field of endeavor, Fantone teaches a surveillance video system in fig. 2, with an imager (116) connected to a waterproof cable (12). Please read pages 3-4, paragraphs 33-34. Both Chapman and Fantone have housings which capable of vertical and horizontal movements (page 3, paragraph 33). In light of the teaching of Fantone, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Chapman's camera support wherein the first and second sealed housings are waterproof, to allow for under-water operation of the

camera head in order to detect underwater creatures such as fish (Fantone, page 1, paragraphs 5-6) and to provide compression between a flex plate and the upper surface of a ring section of an arm plate (Chapman, col. 8, lines 6-17).

Allowable Subject Matter

13. **Claims 8 and 16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

For **claim 8**, prior art does not teach or fairly suggest the camera head of claim 15 further comprising a pan lock pin moveable between a lock position where the pan lock pin extends between the pan housing and the pan arm to prevent movement between them, to an unlock position *wherein the pan lock pin is withdrawn from one of the pan housing and the pan arm*, to allow rotational movement between them.

For **claim 16**, prior art does not teach or fairly suggest the camera head of claim 15 further comprising one or more clutch drive pins within the first housing the between the first clutch and the clutch operation lever, and *with the clutch drive pins axially moveable within the first housing and sealed against the first housing*.

15. **Claims 18 and 23** are allowed.

For **claim 23**, prior art does not teach or fairly suggest the camera head comprising: a first sealed housing on the first frame; a first hollow shaft rotatably supported within the first sealed housing, with the second frame attached to the first shaft, and the first shaft sealed against

Art Unit: 2612

the first sealed housing; a first gear linked to the first shaft through a first clutch, and with the first gear linked to the first motor; a first slip ring assembly extending into the first hollow shaft; a first shaft plug within and sealed against the first hollow shaft; a first electrical cable extending into a first end of the first slip ring assembly via a waterproof connection; and a second electrical cable extending through a waterproof connection in the first shaft plug and into a second end of the first slip ring assembly.

Claim 18 is allowed because it is dependent on claim 23.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Art Unit: 2612

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571) 272-7316. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CJQ
September 30, 2005


NGOCYENVU
PRIMARY EXAMINER